

We claim:

1. A process to make a dyed fiber which comprises mixing at least one dye capable of changing color and at least one polymer into at least one solvent at a temperature below the temperature at which the dye or polymer degrades to form a polymer dye solution and electrospinning said polymer dye solution to form a fiber wherein the dye penetrates more than the surface of the fiber.
2. The process as claimed in claim 1, wherein said dye is uniformly dispersed through said fiber.
3. The process as claimed in claim 1, wherein said dye is photochromic compound, solvatochromic compound, magnetochromic, electrochromic, thermochromic compound, piezochromic compound, or leuco body.
4. The process as claimed in claim 2, wherein said dye is photochromic compound, solvatochromic compound, magnetochromic, electrochromic, thermochromic compound, piezochromic compound, or leuco body.
5. The process as claimed in claim 3, wherein said leuco body is a triarylmethane dye, quinone dye, indigoide dye, or azine dye.
6. The process as claimed in claim 1, wherein said polymer is Poly(L-lactide)(PLA), 75/25 Poly(DL-lactide-co-E-caprolactone), 25/75 Poly(DL-lactide-co-E-caprolactone), Poly(E-caprolactone), polyglycolic acid, polydioxanone, collagen, polytetrafluoroethylene, polyurethane, polyester, polypropylene, polyethylene, polybutylene or silicone.
7. The process as claimed in claim 1, wherein said polymer dye solution contains at least one solvent selected from the group consisting of hexafluoroisopropanol

, dichloromethane, dimethylacetamide, chloroform, dimethylformamide, methylene chloride, and xylene.

8. The process as claimed in claim 1, wherein said polymer is a polyester, polydimethyl isophthalate (DMI), polymethyl methacrylate (PMMA), polyethylene terephthalate (PET), polycarbonate, polystyrene, polyvinylidene chloride, polyvinylidene fluoride, polyethyleneoxide, nylon 6, nylon 6/6, nylon 11, nylon 12 or mixtures thereof.
9. The process as claimed in claim 8, wherein said at least one solvent is a high-volatile solvent group or a low-volatile solvent group or a mixture thereof.
10. The process as claimed in claim 9, wherein said solvent is acetone, chloroform, ethanol, isopropanol, methanol, toluene, tetrahydrofuran, water, benzene, benzyl alcohol, 1,4-dioxane, propanol, carbon tetrachloride, cyclohexane, cyclohexanone, methylene chloride, phenol, pyridine, trichloroethane or acetic acid; N,N-dimethyl formamide (DMF), dimethyl sulfoxide (DMSO), N,N-dimethylacetamide (DMAc), 1-methyl-2-pyrrolidone (NMP), ethylene carbonate (EC), propylene carbonate (PC), dimethyl carbonate (DMC), acetonitrile (AN), N-methylmorpholine-N-oxide, butylene carbonate (BC), 1,4-butyrolactone (BL), diethyl carbonate (DEC), diethylether (DEE), 1,2-dimethoxyethane (DME), 1,3-dimethyl-2-imidazolidinone (DMI), 1,3-dioxolane (DOL), ethyl methyl carbonate (EMC), methyl formate (MF), 3-methyloxazolidin-2-on (MO), methyl propionate (MP), 2-methyletetrahydrofuran (MeTHF) or sulpholane (SL).
11. A process to make a dyed fiber which comprises mixing at least a photochromic dye and/or a thermochromic dye and a polymethyl methacrylate polymer into a CHCl_3 solution to form a polymer dye solution and

electrospinning said polymer dye solution to form a fiber wherein the dye penetrates more than the surface of the fiber.

12. The process as claimed in claim 1, wherein the electrospinning is conducted at room temperature.
13. The process as claimed in claim 1, wherein there are at least two dyes capable of changing color being used.
14. The process as claimed in claim 1, wherein there are at least two polymers being used.
15. A fiber made from the process as claimed in claim 1.
16. A camouflage material which comprises the fiber as claimed in claim 15.
17. A sensor which comprises the fiber as claimed in claim 15.
18. A sensing membrane which comprises the fiber as claimed in claim 15.
19. A counterfeit protector which comprises the fiber as claimed in claim 15.
20. An information storage mechanism which comprises the fiber as claimed in claim 15.
21. An optical switch which comprises the fiber as claimed in claim 15.